Project Level Application

	1 CO2	2 Res	3 W&L	4 Pol	5 QoL	6 Bio	7 Dis	8 Mat	9 Inc	10 Con	11 Saf	12 Aff
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

See the terms used in this sheet in detail via this link: **Glossary**

Geography and Climate	Mountainous ☐		Flat ☑		Arid ☐	Tropical ☐		Pacific Islands ☐
Standard of road	Low-Volume/rural ☐		Paved highways ☑		Expressed highways ☐			Urban roads ☐
Road project stage	Planning ☑		Design ☐		Construction/Implementation ☐			Maintenance ☐
Degree of impact	Incremental ○		Progressive ○		Transformative ○			All ◉

Step 2: Select Enabling factor(s) aligning with the current conditions or policies

- ☐ Improved Design Standards
- ☐ Modified Tendering Procedures
- ☐ Policy Development
- ☐ Environmental Standards
- ☐ Regulatory Frameworks
- ☐ Improved Planning Systems
- ☐ Public Awareness and Education
- ☐ Collaborative Partnerships
- ☐ Roadmaps for Green Roads
- ☐ Supply systems: available Resources and Materials
- ☐ Application of New Technologies
- ☐ Connection with other programs

Green Road Practices found	83

GR objectives served: ● Core contributions ○ Secondary contributions — **Enabling factors**

Green Road Theme	Intervention Area	No.	Practice Name	1 CO2	2 Res	3 W&L	4 Pol	5 QoL	6 Bio	7 Dis	8 Mat	9 Inc	10 Con	11 Saf	12 Aff
1. Decarbonization	1.1. Road Network Planning and Road Transport Management	1.1.5	Facilitate the use of fuel-efficient vehicles	●										○	
1. Decarbonization	1.1. Road Network Planning and Road Transport Management	1.1.7	Introduce electric vehicles (EVs)	●			○								
1. Decarbonization	1.1. Road Network Planning and Road Transport Management	1.1.8	Low carbon road network planning and alignment	●			○	○							
1. Decarbonization	1.1. Road Network Planning and Road Transport Management	1.1.9	Avoiding roads in peatlands to minimize methane and CO2 emissions	●		○									
1. Decarbonization	1.2. Design of roads and road appliencies	1.2.1	Low carbon road specifications	●							○				
1. Decarbonization	1.2. Design of roads and road appliencies	1.2.2	Using carbon sequestering road material (olivine)	●			○								
1. Decarbonization	1.4. Vegetative measures to sequester CO2	1.4.1	Roadside tree planting for sequestering CO2	●	○	○	○	○	○			○		○	
2. Climate Resilience	2.1. Resilient routing/ avoiding vulnerable areas	2.1.1	Moving roads out of channel migration zones		●	○									
2. Climate Resilience	2.1. Resilient routing/ avoiding vulnerable areas	2.1.2	Avoid unstable and wet areas		●	○				○					
2. Climate Resilience	2.3. Increased Stabilization of road sides	2.3.1	Complete ground cover in disturbed areas		●	○									
2. Climate Resilience	2.3. Increased Stabilization of road sides	2.3.5	Armoring the roadway driving surface		●	○					○				
2. Climate Resilience	2.3. Increased Stabilization of road sides	2.3.6	Stabilization of unstable cut and fill slopes		●	○									
2. Climate Resilience	2.4. Enhance Climate Resilience of roads and bridges	2.4.1	Need for best engineering practices for climate resilience	○	●						○				
2. Climate Resilience	2.4. Enhance Climate Resilience of roads and bridges	2.4.2	Climate adaptation measures for bridges		●										
2. Climate Resilience	2.5. Enhance climate resilience of roads in permafrost regions	2.5.2	Thermosyphon cooling under paved roads		●						○				
2. Climate Resilience	2.6. Nature-based Solutions for enhanced climate resilience of roads	2.6.1	Promoting Nature-based Solutions for roads		●	○		○	○						
2. Climate Resilience	2.8. Resilient road maintenance	2.8.1	Risk-informed and routine road maintenance		●	○					○				
3. Water and Land Management	3.1. Water harvesting and run-off storage	3.1.1	Floodwater spreaders along road surfaces		○	●			○	○		○			○
3. Water and Land Management	3.1. Water harvesting and run-off storage	3.1.2	Directing water to retain ponds/ditches at the roadside		○	●	○		○	○		○			
3. Water and Land Management	3.1. Water harvesting and run-off storage	3.1.3	Flow diversion from culverts and road drainage		○	●	○		○	○		○			
3. Water and Land Management	3.1. Water harvesting and run-off storage	3.1.4	Infiltration structures fed from road drainage		○	●	○	○	○	○		○			
3. Water and Land Management	3.1. Water harvesting and run-off storage	3.1.5	Surface storage fed from road drainage (repurposed borrow pits, ponds and cisterns)		○	●	○		○		○				
3. Water and Land Management	3.1. Water harvesting and run-off storage	3.1.6	Using roads as reservoir embankments		○	●	○		○	○		○			
3. Water and Land Management	3.2. Agricultural Water management	3.2.1	Cascading irrigation fed from road drainage		○	●	○		○	○		○			
3. Water and Land Management	3.2. Agricultural Water management	3.2.2	Connecting road drainage cuts to farm trenches		○	●	○		○	○		○			
3. Water and Land Management	3.2. Agricultural Water management	3.2.3	Controlled (gated) culverts		○	●				○		○			
3. Water and Land Management	3.3. Groundwater management	3.3.1	Use of infiltration bunds for groundwater recharge along roadsides		○	●	○		○	○		○			
3. Water and Land Management	3.3. Groundwater management	3.3.2	Roadside spring protection and management		○	●			○			○			
3. Water and Land Management	3.3. Groundwater management	3.3.4	Use of water harvesting measures upstream and downstream of the road		○	●	○		○	○		○			
3. Water and Land Management	3.4. Reduced waterlogging and protecting natural channels	3.4.1	Adequate cross drainage to prevent water concentration and adjusted bridge sills		○	●				○					
3. Water and Land Management	3.5. Preventing landslides	3.5.1	Catchment management in sensitive and unstable areas		○	●							○	○	○
3. Water and Land Management	3.6. Erosion and Gully control	3.6.2	Erosion control options for soil and water protection		○	●			○						
3. Water and Land Management	3.7. Avoiding sand dune movement	3.7.1	Disconnecting road alignment from prevailing wind direction			●							○	○	
3. Water and Land Management	3.7. Avoiding sand dune movement	3.7.2	Windbreak and soil stabilization planting		○	●	○	○	○						
4. Reducing Pollution	4.1. Consider road construction materials	4.1.2	Additives used in road materials as pollutants	○			●				○				
4. Reducing Pollution	4.3. Road maintenance	4.3.1	Maintaining abrasion and erosion resistance in roads and roadside structures				●								
4. Reducing Pollution	4.4. Prioritize road drainage	4.4.1	Avoid disposal of untreated road run-off near sensitive areas to prevent potential contamination				●								
4. Reducing Pollution	4.4. Prioritize road drainage	4.4.3	Treat road effluent from controlled concentrated disposal systems through detention ponds, wet ponds, constructed wetlands, infiltration trenches, sand filters or grassed				●		○						
4. Reducing Pollution	4.6. Capture and remove pollutants	4.6.1	Planting roadside grass buffer filter strips to absorb dispersed road runoff pollutants				●		○						
4. Reducing Pollution	4.6. Capture and remove pollutants	4.6.2	Planting roadside vegetation to intercept road dust and ambient pollutants taking into account distance from the road and aerodynamics	○			●		○						
4. Reducing Pollution	4.6. Capture and remove pollutants	4.6.3	Using special accumulator plants for bioremediation of soils along roads	○			●								
5. Improving Quality of life	5.2. Beautification	5.2.1	Scenic roads and roadside facilities					●							
5. Improving Quality of life	5.3. Noise control	5.3.1	Reducing noise from roads					●							
5. Improving Quality of life	5.4. Temperature Control	5.4.2	Separating non-motorized bicycle and pedestrian lanes from vehicles					●				○			
5. Improving Quality of life	5.5. Traffic Safety	5.5.1	Controlling speed for traffic and pedestrian safety					●							
6. Preserving Biodiversity	6.1. Protect and harness invertebrea biodiversity	6.1.1	Habitat management						●				○	○	○
6. Preserving Biodiversity	6.1. Protect and harness invertebrea biodiversity	6.1.2	Developing water points (with road water harvesting) away from roads		○	○			●						○
6. Preserving Biodiversity	6.1. Protect and harness invertebrea biodiversity	6.1.3	Controlling of invasive plant species	○		○		○	●						○
6. Preserving Biodiversity	6.1. Protect and harness invertebrea biodiversity	6.1.4	Native plant selection (habitat alteration)	○	○	○	○	○	●					○	

Category	Sub-category	Code	Description
6. Preserving Biodiversity	6.1. Protect and harness invertebrea biodiversity	6.1.7	Safe passages (culverts, climate tunnels)
6. Preserving Biodiversity	6.1. Protect and harness invertebrea biodiversity	6.1.9	Creating biodiversity corridors by linking road side tree planting with perpendicular hedges
6. Preserving Biodiversity	6.2. Protect and harness vertebrea biodiversity	6.2.1	Fencing of sensitive areas
6. Preserving Biodiversity	6.2. Protect and harness vertebrea biodiversity	6.2.2	Safe passages (culverts, ecoducts, wildlife overpasses and underpasses)
6. Preserving Biodiversity	6.2. Protect and harness vertebrea biodiversity	6.2.7	Viaducts for avoiding or crossing sensitive areas
6. Preserving Biodiversity	6.2. Protect and harness vertebrea biodiversity	6.2.8	Defragmentation-reestablishing wildlife migration corridors
6. Preserving Biodiversity	6.3. Protect aquatic ecosystems	6.3.1	Culvert design for fish passage/AOP/Stream Stimulation
6. Preserving Biodiversity	6.3. Protect aquatic ecosystems	6.3.2	Avoid alteration and sedimentation of streams that affect fishing grounds
6. Preserving Biodiversity	6.5 Digital tools for biodiversity preservation	6.5.1	Biological constraints chart – mapping biodiversity
7. Disaster Preparedness	7.1. Flood mitigation by road network	7.1.1	Flood compartmentalization by roads
7. Disaster Preparedness	7.1. Flood mitigation by road network	7.1.2	Roads-cum-flood embankments
7. Disaster Preparedness	7.2. Enhancing flood resilience through road networks	7.2.1	Elevated roads and bridges (adjusted to flood levels)
7. Disaster Preparedness	7.2. Enhancing flood resilience through road networks	7.2.2	Overflow roads
7. Disaster Preparedness	7.3. Road network capacity to deal with emergencies	7.3.1	Road network capacity to deal with emergencies
7. Disaster Preparedness	7.3. Road network capacity to deal with emergencies	7.3.2	Information Technology (IT) and early warning systems
7. Disaster Preparedness	7.4. Evacuation and access plans	7.4.1	Emergency communications (signage and messaging)
7. Disaster Preparedness	7.4. Evacuation and access plans	7.4.2	Emergency traffic management
7. Disaster Preparedness	7.4. Evacuation and access plans	7.4.3	Emergency Disaster Procedure and Preparedness Planning
7. Disaster Preparedness	7.5. Fire prevention	7.5.1	Access for fire and emergency equipment & fire breaks
7. Disaster Preparedness	7.5. Fire prevention	7.5.2	Fire break along roads
7. Disaster Preparedness	7.5. Fire prevention	7.5.3	Use of fire resistance material
8. Sustainable Materials Sourcing and Construction Practices	8.1. Design	8.1.1	Economical design
8. Sustainable Materials Sourcing and Construction Practices	8.1. Design	8.1.5	Dig Once for Road Transport
8. Sustainable Materials Sourcing and Construction Practices	8.2. Material choice	8.2.1	Efficient life-cycle use of material
8. Sustainable Materials Sourcing and Construction Practices	8.2. Material choice	8.2.2	Safe use of recycled material
8. Sustainable Materials Sourcing and Construction Practices	8.3. Sourcing	8.3.1	Reduce environmental costs of extraction and production: avoid sensitive areas
8. Sustainable Materials Sourcing and Construction Practices	8.3. Sourcing	8.3.2	Reduce haulage costs
8. Sustainable Materials Sourcing and Construction Practices	8.3. Sourcing	8.3.4	Repurposing of extraction sites (borrow pits, stone/clay removal) flat land-play fields
8. Sustainable Materials Sourcing and Construction Practices	8.4. Operation and Maintenance – tailored to Small Island material options	8.4.1	End-of-life strategies for roads
8. Sustainable Materials Sourcing and Construction Practices	8.4. Operation and Maintenance – tailored to Small Island material options	8.4.2	Environmental analysis and reclamation plan for pits and quarries
9. Fostering Inclusive Growth	9.2. Employment generation and local capacity building	9.2.4	Community engagement for planting/maintaining roadside trees
9. Fostering Inclusive Growth	9.3. Promoting road-side business	9.3.2	Regulating roadside vendors
9. Fostering Inclusive Growth	9.4. Ensuring last mile access	9.4.1	Motor cycle and bicycle paths
9. Fostering Inclusive Growth	9.5. Gender and Indigenous population considerations	9.5.1	Promoting gender equality and indigenous populations through road and transport projects